

SN 10/789,487Docket No. S-100,597In Response to Office Action dated April 19, 2007**REMARKS**

1. Claims 1-9 are pending in the present patent application. Claims 1-9 are rejected. No claims are allowed.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Blumenfeld et al. (U.S. 6,867,851 A1) ("Blumenfeld"). For a proper rejection under 35 U.S.C. 102(e), the Office Action must show that the prior art reference discloses the claimed invention. Applicant traverses the rejection because Blumenfeld does not disclose the claimed invention.

3. To support the rejection to claim 1, the Office Action argues that Blumenfeld discloses an apparatus for directly imaging small particles consisting essentially of:

- (i) an integrated array of light sensitive pixels at column 16, lines 31-37 having a surface configured to receive the small particles within an effective distance for the particles (col. 10, lines 36-43 and col. 12, lines 57-64) to affect the pixel readout amplitude (col. 28, lines 41-44) and where the pixel readout amplitude (col. 28, lines 41-44) and where the pixels have an area on the order of the area of the small particles to be directly imaged (col. 6, lines 4-11);
- (ii) a light source for illuminating the array (col. 16, lines 31-37); and
- (iii) means for displaying an output from the pixels to provide an image of the small particles directly contacting the surface of the array (col. 12, lines 1-4, and col. 16, lines 46-54).

4. Applicant respectfully disagrees. Blumenfeld teaches an apparatus that reads a DNA chip. The DNA chip is a DNA array in contact with a substrate. The Blumenfeld apparatus includes a substrate-holder that holds the substrate and supported DNA in place on a CCD array. Applicant's claim 1, on the other hand, is drawn to an apparatus for directly imaging small particles directly contacting the surface of a pixel array. In contrast to Blumenfeld, applicant's claimed apparatus does not include a substrate

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holder, or even a substrate. The substrate would prevent the particles from directly contacting the surface of a pixel array. Thus, Blumenfeld does not anticipate claim 1. Therefore, Applicant kindly requests that the rejection of claim 1 under 35 U.S.C. 102(e) over Blumenfeld be withdrawn.

5. Claim 2 is rejected under 35 U.S.C. 102(e) as being anticipated by Blumenfeld. For a proper rejection under 35 U.S.C. 102(e), the Office Action must show that the prior art reference discloses the claimed invention. Applicant traverses the rejection because Blumenfeld does not disclose the claimed invention.

6. To support the rejection, the Office Action argues that Blumenfeld discloses the apparatus of claim 2 because Blumenfeld discloses the apparatus of claim 1 wherein the integrated array of light sensitive pixels is selected from the group of CCD arrays and CMOS arrays, noting column 9, lines 18-21.

7. Applicant respectfully disagrees. Blumenfeld does not anticipate claim 2 because:

- (i) Applicant's claim 2 depends from claim 1;
- (ii) Blumenfeld teaches an apparatus with a substrate-supported DNA array and sample holder for holding the substrate in place; and
- (iii) Applicant's claimed limitations do not include a substrate holder, or even a substrate.

Therefore, Applicant kindly requests that the rejection of claim 2 under 35 U.S.C. 102(e) over Blumenfeld be withdrawn.

8. Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Blumenfeld. For a proper rejection under 35 U.S.C. 102(e), the prior art reference must disclose the claimed invention. Applicant traverses the rejection because Blumenfeld does not disclose the claimed invention.

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9. To support the rejection to claim 4, the Office Action argues that Blumenfeld discloses a method for directly imaging small particles comprising:

- (i) forming an integrated array of light sensitive particles having a surface configured to receive small particles within a distance above a light sensitive surface of the pixels effective to detect selected characteristics of the small particles;
- (ii) placing the small particles directly on the surface of the pixels (col. 14, lines 1-10);
- (iii) outputting an image signal from individual ones of the light sensitive pixels; and
- (iv) displaying the image signal to provide a visualization of the small particles.

10. Applicant respectfully disagrees. Claim 4 recites "placing the small particles directly on the surface of the pixels". Blumenfeld deposits an assay on a substrate, not directly on a CCD array. The substrate prevents placing particles directly on the surface of the pixels. Furthermore, Blumenfeld does not teach or suggest the production of an image of a particle or particles. In fact, Blumenfeld is silent with regard to any disclosure of particles. Thus, Blumenfeld does not anticipate claim 4. Therefore, Applicant kindly requests that the rejection of claim 4 under 35 U.S.C. 102(e) over Blumenfeld be withdrawn.

11. Claim 5 and claim 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Blumenfeld. For a proper rejection under 35 U.S.C. 102(e), the prior art reference must disclose the claimed invention. Applicant traverses the rejection because Blumenfeld does not disclose the claimed invention.

12. To support the rejection to claim 5, the Office Action argues that Blumenfeld discloses the method of claim 4, further including the step of selecting an integrated array having pixel sizes less than the size of the small particles, noting column 9,

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lines 23-28. To support of the rejection to claim 6, the Office Action argues that Blumenfeld discloses the method of claim 4, further including the step of illuminating with a collimated light source the integrated array of light sensitive pixels having the small particles on the surface of the pixels, noting column 21, lines 61-66.

13. Applicant respectfully disagrees. As Applicant has pointed out above, Blumenfeld deposits an array on a substrate, not directly on a CCD array. The substrate prevents placing particles directly on the surface of the pixels. Furthermore, Blumenfeld does not teach or suggest the production of an image of a particle or particles. In fact, Blumenfeld is silent with regard to any disclosure of particles. Claims 5 and 6 depend from claim 4. Thus, Blumenfeld does not anticipate claims 5 or 6. Therefore, Applicant kindly requests that the rejection to claims 5 and 6 under 35 U.S.C. 102(b) over Blumenfeld be withdrawn.

14. Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by Blumenfeld. For a proper rejection under 35 U.S.C. 102(e), the prior art reference must disclose the claimed invention. Applicant traverses the rejection because Blumenfeld does not disclose the claimed invention.

15. To support the rejection to claim 7, the Office Action argues that Blumenfeld discloses an apparatus for directly imaging small particles comprising:

- (i) an integrated array of light sensitive pixels having a surface configured to directly receive the small particles within a distance effective for a selected characteristic of the particles to be directly detected by the light sensitive pixels and where the light sensitive pixels have an area on the order of the area of the small particles to be directly imaged; and
- (ii) video means for displaying an output from the light sensitive pixels to provide an image of the selected characteristic of the array.

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16. Applicant respectfully disagrees. Applicant's apparatus has light sensitive pixels having a surface configured for directly receiving small particles. Blumenfeld, on the other hand, teaches an apparatus having a substrate and a substrate holder. An assay is deposited on the substrate and the substrate holder holds the substrate in place. Thus, Blumenfeld does not anticipate claim 7. Therefore, Applicant kindly requests that the rejection of claim 7 under 35 U.S.C. 102(e) over Blumenfeld be withdrawn.

17. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenfeld in view of Fein et al. (U.S. 2004/0159773 A1) ("Fein"). For a proper rejection under 35 U.S.C. 103(a), the Office Action must show that the invention would be obvious to a skilled artisan in view of the prior art. Applicant traverses the rejection because one of ordinary skill in the art would not find Applicant's claimed invention obvious over Blumenfeld in view of Fein.

18. To support the rejection, the Office Action argues that regarding Claim 3, Blumenfeld is silent about the specific details regarding the apparatus of claim 2, where the pixel area is less than 5 micron square but that Fein, which discloses an imaging system, also discloses a pixel area less than 5 micron square.

19. Applicant respectfully disagrees. Claim 3 is indirectly dependent from claim 1, which is drawn to an apparatus consisting essentially of:

- (i) a pixel array for imaging particles directly on the pixel array;
- (ii) a light source; and
- (iii) means for displaying output from the pixel array to provide an image of the small particles directly contacting the surface of the array.

Blumenfeld teaches an apparatus with a substrate and substrate holder. Applicant does not teach a substrate holder, or even a substrate. The substrate would prevent particles from directly contacting the surface of the pixel array. Thus, Blumenfeld

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teaches away from the claimed invention. Thus, the combination of Blumenfeld and Fein fails to render obvious claim 3. Therefore, Applicant kindly requests that the rejection of claim 3 under 35 U.S.C. 103(a) over Blumenfeld in view of Fein be withdrawn.

20. Applicant respectfully requests that this amendment be entered into the present patent application. For the reasons set forth above, Applicant believe that all currently pending claims are in condition for allowance, and such action at an early date is earnestly solicited. No new matter has been added by the above changes. Reexamination and reconsideration are respectfully requested.

Respectfully submitted,

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